InscapeData

AirGoggle™ NVS 480R

Network Audio/Video Server & Recorder

User's Manual

Inscape Data Corporation

Version 060206-1

Directions

The NVS480R is designed for indoor use only. When using the NVS480R outdoors or in an environment that exceeds the limited range, you must separately use a water-resistant case.

Be careful not to cause any physical damage by dropping or throwing the NVS480R A/V Server. Especially keep the A/V server out of the reach of children.

Do not disassemble the NVS480R. You will be excluded from the After Service when disassembled.

Use only the power adapter provided with the NVS480R.

If you would like to use the NVS480R A/V server for security monitoring, please check the legal regulations within the country.

Note

This equipment has been manufactured and tested to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the video equipment and receiver equipment in question.
- Connect the video equipment into a power outlet on a circuit different than the receiver equipment in question. Reorient or relocate the receiving antenna.
- Consult the dealer or an experienced radio/TV technician for help.

Caution

Any changes or modifications in construction of this device that are not expressly approved by Inscape Data could void the user's authority to operate the equipment.

Caution

None of the parameters on the administrative page should be changed while the NVS480R is recording video or while you are playing back recorded video from the NVS480R.

Table of Contents

1. Introduction

1.1. Overview

The NVS480R is a state-of-the-art 4-channel network DVR and A/V server.   It is a culmination of standard A/V codec technologies such as MPEG4 and ADPCM, an embedded web server, an embedded streaming server, various network protocols and hard disk manipulation technology.   The NVS480R offers a premium grade DVR and A/V server. For example, it contains simultaneous video recording, online streaming and video playback, which no other DVR has ever done before. The NVS480R can be connected, controlled, and monitored from a remote location through an IP address.   The NVS480R can acquire various analog video data from CCTV cameras, DVD, or TV tuners. Based on the Embedded Software Solution, the NVS480R ensures high performance and stability, and provides a wide range of applications to the owner.   Another advanced feature of the NVS480R is dual streaming mode, which provides an ideal environment when low speed network is used for connecting the NVS480R. This feature assures high quality video recording on the HDD, while providing lower quality online streaming data to the connected user.

1.2. Features of the NVS480R

• 4-channel real time audio/video streaming based on **MPEG-4 video and ADPCM audio**.

• 4-channel real time audio/video recording onto the built-in high capacity hard disk drive.

• 1-channel full duplex audio between the NVS480R and the client PC for two-way communication

• Viewer assisted **recording and playback functions**.

• 4 alarm sensor inputs and 2 relay control outputs

• Motion detection– Up to 3 motion detection regions per channel. Motion detection can initiate video recording, which has the option to be sent to the user through FTP and/or E-mail.

• Resolution:

       -NTSC Video: (702x480) D1, 640x480(VGA), 352x240, 320x240, 176x144

       -PAL/SECAM: 704x576, 352x288(CIF), 352x288, 176x144

• Remote Software Upgrade over Network

• Major features of DVR mode of operation

    ➢   Uninterrupted recording mode by overwriting when HDD is full

    ➢   Vast recording mode features (Manual, Scheduled, Event-Triggered)

    ➢   Fast and convenient video search mode (Calendar-Based, Search Filters)

    ➢   System status display function including Date, Time, Storage Mode, Remaining Storage Space.

    ➢   Alarm sensing (sensor and motion detection) and alarm recording

    ➢   Powerful user interface program

➢ Local Quad display output via S-Video or RCA connection

➢ On-unit and external recording on-demand switch

➢ Compact size: World's smallest 4-channel DVR

➢ Time-Search-Slider Control for moving to arbitrary time during playback mode

➢ High data compression ratio

➢ Quadplex feature - Simultaneous operation of recording, playback, search, and online

➢ Download and store features of recorded A/V data

➢ Dual simultaneous streaming video features: To provide high quality video recording on a local HDD, while providing low speed streaming online video to users connected through a low speed network

➢ Network accessible hard disk to store user data

1.3. Applications of the NVS480R

• Security surveillance (buildings, stores, factories, parking lots, banks, government facilities, military, etc.)

• Real time Internet broadcasting (resort areas, events, etc.)

• Remote monitoring (hospitals, kindergartens, traffic, public areas, etc.)

• Teleconference (Bi-directional video conference)

• Remote learning

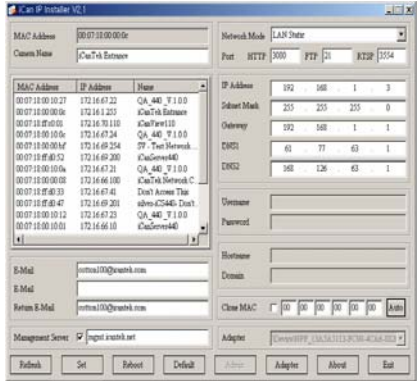• Weather and environmental observation

2. Product Description

2.1. Contents

Open the package and check for the following items:

Contents	Description	Remarks
NVS480R	DVR and A/V server	Main Unit with HDD (120Gbytes)
AC Power Adapter	Input: 100~250V 50-60Hz Output: +12V, 2.0A	
AC Power Cable	AC 250V, 10A~16A	
LAN Cable	2m LAN cable – Crossover type	For direct connection between the server and PC.
CD-ROM	Product Software & User's Guide	
Quick Install Guide	Easy to follow Quick Install Guide	
Alarm/Relay Connector	Adapter to connect external sensors and alarm devices	2 sets

2.2. Content Preview

NVS480R	IP-Installer	NVR100 Software
NVS480R Network DVR and A/V Server	IP Address Management PC Software	Full Feature PC Software to View and Record Streaming A/V Data and Control the Mode Operation

2.3. Physical description

2.3.1. Front panel

Figure 2-1. Front Panel of the NVS480R

• **URGENT Switch**

Press this button switch to start or stop manual recording in urgent condition. The recording status will change upon pressing the switch. There are two pins to connect extended switch for the same purpose at the rear panel.

• **Status indicator**:

As shown in Figure 2-1, there are three status indicator LEDs. From left to right they are HDD, LAN and Power.

HDD: HDD access indicator. The LED turns on when the HDD is busy.

LAN: Link indicator. A continuous green light means that the LAN is in a normal state. When there is traffic on the LAN, an orange light flickers.

Power: The status indicator shows the status of the NVS480R in three different colors.

① Green: The green light indicates that the NVS480R is operating properly. If the green light is continuously on, it means that the NVS480R is ready to transmit data via network. If the green light blinks, it means that there is traffic between the LAN and the NVS480R.

② Red: The red light indicates that the hardware of the NVS480R is not operating properly.

③ Orange: The orange light indicates that the software of the NVS480R is not operating properly.

> When applying power to the NVS480R, the power indicator temporarily lights on with a red color and then returns to green. This is normal.
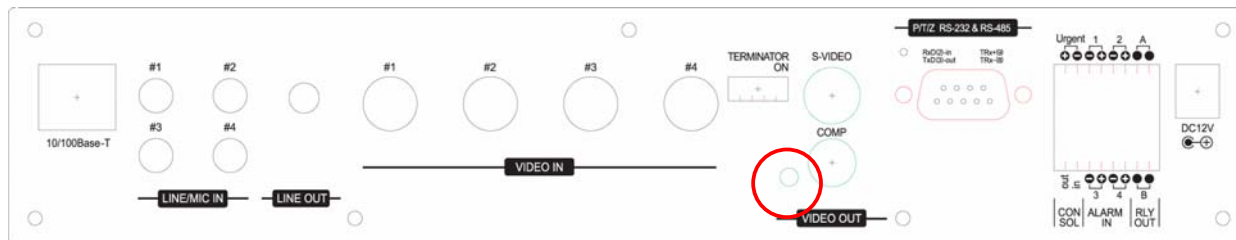
2.3.2. Rear panel

Figure 2-2. Rear Panel of NVS480R

• **Ethernet:** 10/100 Mbps Ethernet connector (RJ-45).

• **Line/Mic In:** Are used to connect an external audio source or microphone to the NVS480R. There are 4 Line/Mic. In connectors.

Use a standard stereo earphone jack for the connection.

• **Line Out:** Is used for connecting external speakers with a built-in amplifier. Audio from a remote site is output through Line Out in bi-directional audio mode.

Use a standard stereo earphone jack for the connection.

• **Video1- Video4:** 4 Video input (composite NTSC, PAL, SECAM)

• **Terminator:** Enables termination by a 75 Ohm resister for each video input when switched on.

Leave the terminator in the ON position when no other device is sharing the same video line. If the NVS480R is not the last equipment on the shared video bus line, then disable termination. Otherwise if the NVS480R is the last device in the video bus, enable termination.

• **S-Video** : Live video from the camera can be displayed on a local monitor with S-Video input. To use S-Video monitor, go to Admin -> Basic Set Up -> Output Video Type to select "S-Video".

• **Composite** : Live video from the camera can be displayed on a local monitor with Composite vidoe input. To use Composite video monitor, go to Admin -> Basic Set Up -> Output Video Type to select "Composite".

• **Reset Button:** Used for resetting the NVS480R to default factory parameters. The button is a pin-hole located between the Video4 and RS-485 connectors. Use a pointed tool to press the button for 3 seconds and release.

• **RS-485 and RS-232 interface:** Used for interfacing of the Pan, Tilt, and Zoom (P/T/Z) devices.

The pin assignments for the shared interface are as follows:

Pin 2 – RS-232 In

Pin 3 – RS-232 Out

Pin 5 – RS-232 GND

Pin 8 – RS-485 Negative (-) input

Pin 9 – RS-485 Plus (+) input

(Either one type of RS-485 or RS-232 interface can be used at one time.)

• **Relay output:** Used for interfacing external alarm generators such as sirens, beacons, or alert equipment. When activated, the relay output interface provides a closed circuit path which shorts the two terminals, providing a complete electrical path.   Two relay output interfaces, A and B, are provided.

• **Alarm Input**: The 4port alarm sensor input connections provides external alarm sensors such as infrared, heat, or magnetic sensors.

(Power Connector: Accepts power of 12VDC and 3A

2.4. PC Requirements

Audio/Video monitoring and recording can be achieved with the use of NVR100 Software program running on a PC. The Minimum PC requirement follows:

	Minimum	Recommended
CPU	Pentium III 700	Pentium IV 1.8 GHz or equivalent
Memory	256 MB	1GB or more
Operating system∗	Windows 2000	Windows XP or later
Web browser	Internet Explorer 5.0	Internet Explorer 6.0 or later
Video Resolution	1024 X 768	1600 X 1200
Network	10 Base-T Ethernet	10/100/1000 Base-T Ethernet

∗ Operating Systems supported: Windows NT Workstation 4.0 (SP 5.0 OVER)

Windows 2000 Professional

Windows XP Professional

2.5 Quick Installation Guide

Brief information for rapid installation is provided in this section. For more detailed information, you are recommended to refer to pertinent documentations provided with the product, or refer to Inscape Data's home page www.inscapedata.com.

1. **Install the "IP installer" and "NVR100 Software" on your PC.**

   Detailed information for installing these programs can be found in the **[IP-Installer User's Guide]** and **[NVR100 Software User's Guide],** respectively.

2. **Assign an IP address to the NVS480R via the IP installer software.**

   Identify the type of the network environment and set up an IP address accordingly. A detailed process of setting up the IP address can be found in the **[IP-Installer User's Guide]**. If the network type is xDSL or Cable modem, you will need supplementary information provided by your ISP.

3. **Connect to the NVS480R in Administrator Mode for initial parameter setup.**

   All parameters are set to the factory default state when the NVS480R is delivered to you. Detailed information on using the administration mode can be found in section 5 [**5. Configuring the A/V Server in Administrative Mode]**. The parameters in the following table should be setup with proper values. Detailed information for the parameters in Administrator Mode can also be found in section 5 [**5. Configuring the A/V Server in Administrative Mode]**

   NOTE: The setup values are preserved even when the power is turned off.

Reference	Parameter	Setup value	Factory default value
Section 5.2	Max Upload Bandwidth	Set this value lower than the allowed upload bandwidth.	10Mbps
Section 5.2	Max Users	Number of users allowed to share video.	10users
Section 5.4	Administrator Name & Password	For security reasons, it is recommended you change these values from the factory default settings. Please save these new values in a secure place.	Username: root Password: root
Section 5.4	Current Time	Input correct time in this field.	2001/1/1

4. **Connect audio/video sources and output devices to the NVS480R accordingly.**

   NOTE: The NVS480R may not function properly if there is no video and audio input. Please reference the following table for proper functional setup. You have to connect at least one video source.

Connectors	Function	Signal description	Number

Video In	Input Video connector	Analog video outputs from analog CCTV camera, DVD, TV etc., (NTSC/PAL/SECAM).	1 to 4
Line In/Mic	Audio In	Microphone or output from audio devices.	1 to 4
Line Out	Audio Out for Speaker	When in bi-directional audio mode, the audio signal from a remote site is available from this connector. Use a speaker with an amplifier.	1
Alarm IN	Connecting Alarm Sensor	Example: IR sensor, motion sensor, smoke detector, and many more types of sensors.	1 to 4
RLY Output	Connecting Alarm Alerting Device	Example: siren, beacon, external relay.	1 to 2
RS485	PTZ Device Control	Output signal controlling a PTZ device.	

5. Video Connection to the NVS480R

You can connect to the NVS480R in video mode by running the "NVR100 Software" program on your PC. Detailed information on using the "NVR100 Software" can be found in the [NVR100 Software User's Guide].

3. Connecting the NVS480R

The NVS480R supports LAN, xDSL, and Cable modems. It also supports a shared IP network where a single public IP address is shared by many internal network clients.   Refer to the **[IP-Installer User's Guide]** for details on setting the IP address for the NVS480R.

3.1. Connecting to a LAN

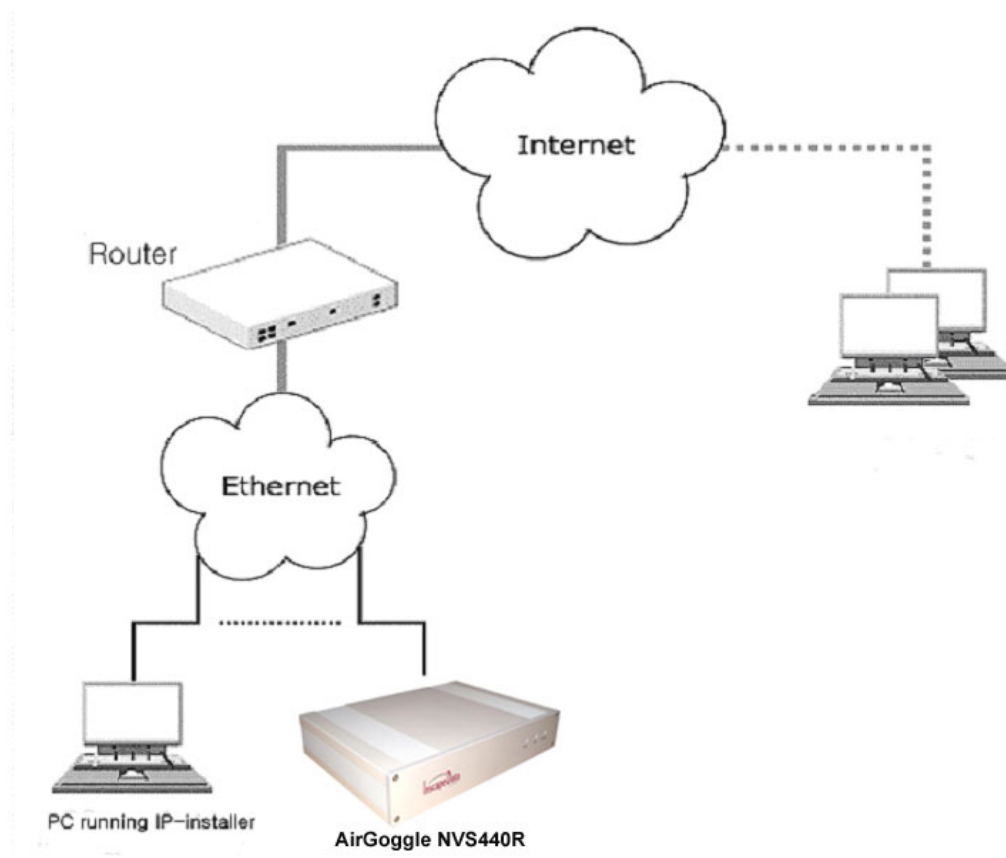Typically the NVS480R is connected to a LAN as follows:

Figure 3-1. Connecting the NVS480R to a LAN

1. After power on, connect the NVS480R to a LAN.

2. Assign an IP address to the NVS480R by using the IP-Installer.   Make sure the PC running the IP-Installer is in the **same subnet** as the NVS480R.

3. Check if video streams can be viewed with the NVR100 software.

3.2. Connecting to an xDSL Modem

1. After power on, connect the NVS480R to a PC or Notebook via a crossover CAT 5 network cable provided with the system.

2. Set up network parameters by running the "IP-Installer."

AirGoggle NVS440R
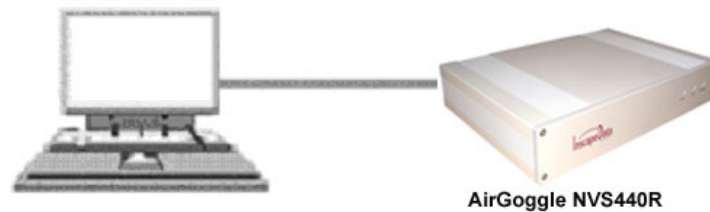
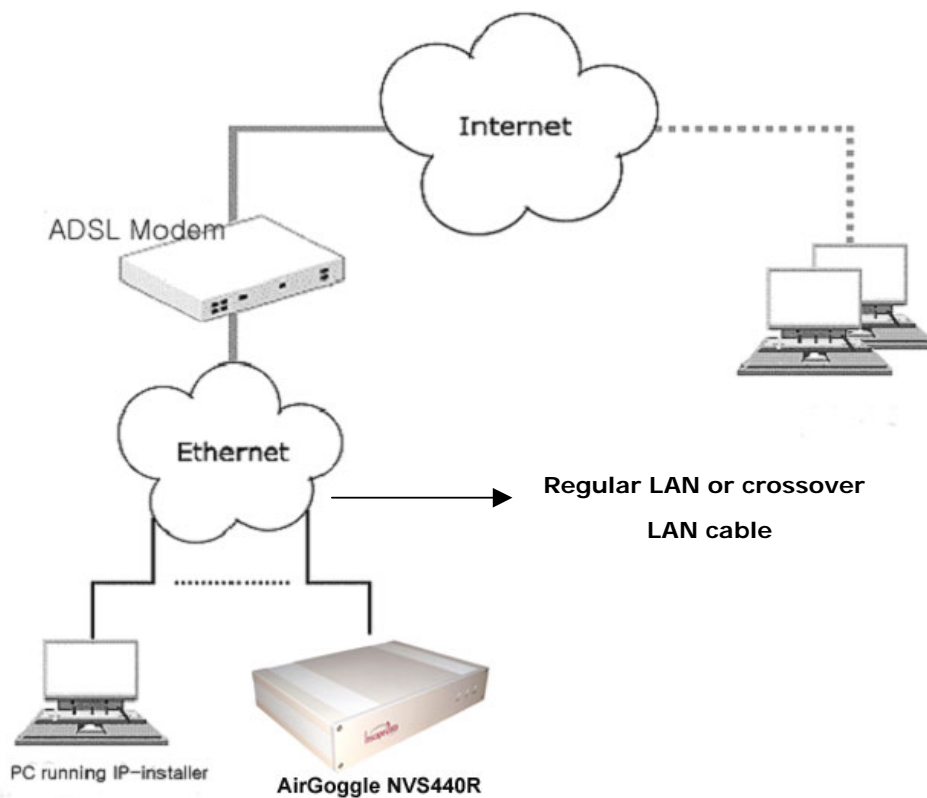**Figure 3-2. Direct Connection Using a Crossover LAN Cable**

Internet

ADSL Modem

Ethernet

Regular LAN or crossover LAN cable

PC running IP-installer   AirGoggle NVS440R

Figure 3-3. Connecting the NVS480R to xDSL

3. Remove the CAT 5 crossover network cable to the PC or Notebook and connect the NVS480R to the network using a standard CAT 5 network cable. Verify the connection by using the NVR100 network video

software to see if the video source is viewable.

> ⚠️ In most cases when connecting the NVS480R to an xDSL Modem, a standard Ethernet network cable is required. But since a few xDSL Modems use crossover connections, please verify the interface with your Modem manufacturer.

3.3. Connecting to a Cable Modem

1. Apply power and connect the PC and NVS480R together via the crossover cable provided with the system.

2. Set up network parameters by running the "IP-Installer". (Refer to Figure 6).

AirGoggle NVS440R
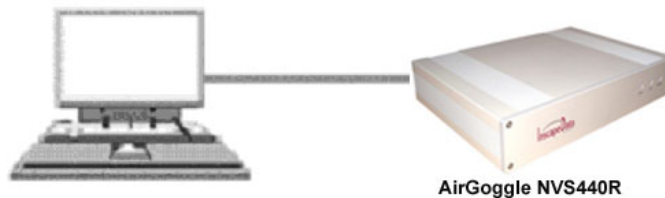
Figure 3-4. Direct Connection Using a Crossover LAN

3. Remove the crossover cable and connect the NVS480R to the network using a standard LAN cable as shown in Figure 3-5. Check if you can receive video data when connecting to the NVS480R using the viewer program.
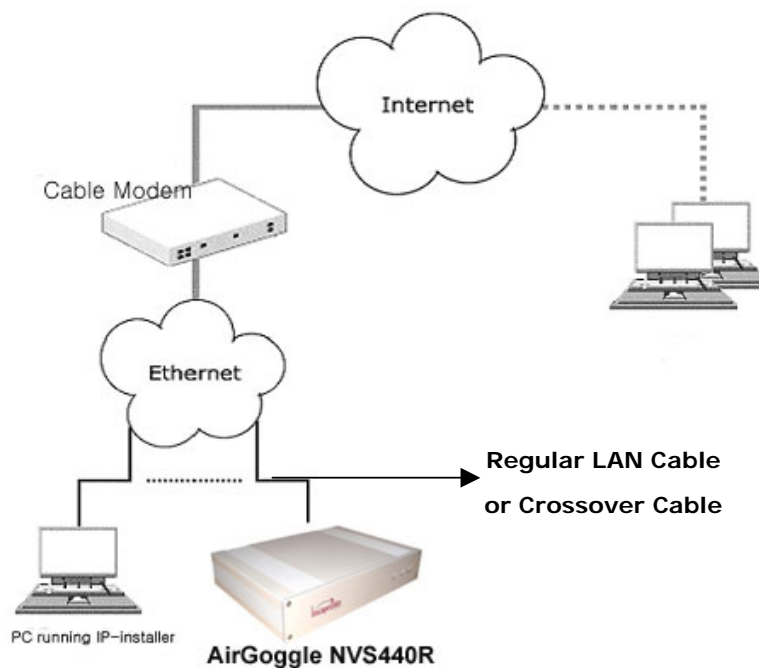
Figure 3-5 Connecting the NVS480R to a Cable Modem

> ⚠️ In most cases when connecting the NVS480R to a Cable Modem, a standard Ethernet network cable is required. In some cases a crossover connection may be needed. Please verify the interface with your Cable Modem manufacturer.

4. IP-Installer

The NVS480R is IP addressable, and therefore needs an IP address for connection to the network. Inscape Data's IP-Installer is a PC program developed to assign IP addresses and network parameters to digital video security network products such as the AirGoggle line of Network Video Cameras and Network Video Servers from Inscape Data. The IP-Installer is contained in the CD supplied with your product, or it can be downloaded from **www.InscapeData.com**.

Detailed information on installing and running the IP-installer can be found in the IP-installer User's Guide included in this CD-ROM.

4.1. Main Window of the IP-Installer

Figure 4-1. IP-Installer

5. Configuring the NVS480R in Administrative Mode

5.1. Log On

There are 2 methods of login into the NVS480R administrative console.   One is through a standard Internet browser and the other is through the "NVR100 Software" program.

5.1.1. Using Internet Explorer

You can log on to the server by clicking the admin mode button, or from your internet browser.

Type in the following URL in the address window of your favorite web browser:

http://[NVS480R IP address]/admin.htm

Example: **http://172.16.64.33/admin.htm**

If you changed the HTTP port from the default value, you can log in by typing:

http://[NVS480R IP address]:[port]/admin.htm

Example: **http://172.16.64.33:8080/admin.htm**

5.1.2. Log On from the "NVR100 Software"

Select a video channel in the viewing window of the "NVR100 Software" using your computer mouse. The selected video channel will be highlighted. Click the ⊛ button on the right side of the display screen, which is shown circled below in picture (A).
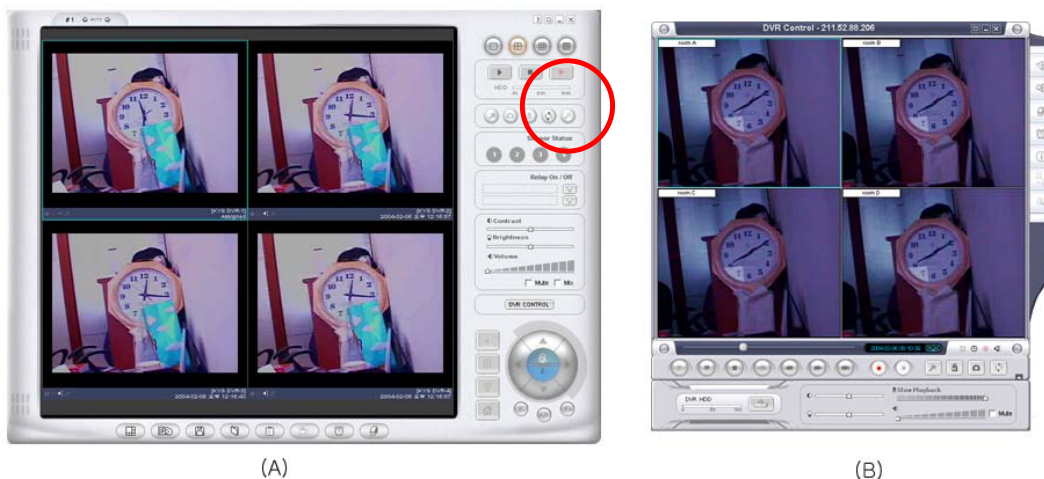

(A)   (B)

Figure 5-1. Main Screen (A) and DVR control Screen (B) of the "NVR100 Software"

5.1.3. Controlling the DVR

When the NVS480R is connected through the NVR100 Software or an Internet browser, it is connected as an A/V server. In this mode, the NVS480R functions as a real-time streaming A/V server to the client. A user having the privilege of administrator can enter into DVR control mode by pressing the [DVR CONTROL] button. The DVR software will execute as shown in the previous picture, Fig.5.1(B).   The built-in security feature only allows one user to be connected as a DVR administrator. Refer to the NVR100 Software User's Guide included in this CD-ROM for more detailed information on DVR control.

5.1.4. User ID and Password

When initially logging in to the NVS480R, a window prompt for your User Name and Password appears as shown below in Figure 5-2.

Figure 5-2. Log On Screen

The factory default User Name and Password are set as '**root**' and '**root**', respectively. Click on the "OK" button to enter into the Basic Setup page of Admin Mode. If you have changed the username and password of the Administrator, you must log on with the changed username and password.

5.2. Basic Setup

Sets up the basic parameters of the NVS480R.   The web interface is shown below in Figure 5-3.

Figure 5-3. Basic Setup

- **Language Selection**: You can select a language in the admin page.

    - Supported languages: English, Korean, Japanese, Chinese, Spanish

- **System Name**

    Is the name of the NVS480R. It is same as the one setup by the IP-installer.

    You can reassign the system name in admin mode.

• **Enable OSD Time**

> **-**　　　When enabled, Date and Time information will be encoded into the bottom of the video.　This feature allow retrieved video to include date and time information embedded into the video.

• **Audio Input Selection**

> - Select the type of input audio for each channel. Line In is used for connecting audio output from audio devices. Mic is used for connecting the output of the microphone.
> - Input Gain: Sets the gain of the input audio.

• **Video Quality & Bandwidth Control**

  - Input Video Source: Select the analog video standard for input. Select one from NTSC, PAL, or SECAM.

  - Output Video Type: Video from the cameras can be displayed on a local monitor of S-Video or composite video standard. Select type of the monitor used for the display when local monitor is used.

  - Video Size: Select a video size for transmission. Allowed video size are different for each video standard.

> - NTSC (30 frames/sec Max.) : 704x480, 640x480, 352x240, 320x240, 176x144
> - PAL (25 frames/sec Max.) : 704x576, 352x288, 176x144
> - SECAM (25 frames/sec Max.) : 704x576, 352x288, 176x144

  If "VGA Base" is selected, horizontal resolution can be one of 640, 320, or 176. If "D1 Base" is selected, horizontal resolution can be one 704, 352, or 176.

.

> ● Description: Assign a name for each channel. Assigned names are shown on corresponding view windows of the viewer. The name consists of a maximum of 79 alphanumeric characters.
> ● Max upload rate
> Assign maximum bandwidth of the uplink for the network connected to NVS480R.
> ● Frame rate
> Assign number of video frames transmitted for each second. You can improve picture quality by lowering the frame rate for the same bandwidth.
> ● Video rate
> Assign bandwidth for transmitting video data for each channel. Video data is not transmitted if NA is selected.
> ● Audio rate
> Assign bandwidth for transmitting audio data for each channel. Audio data is not transmitted if you

select NA.
- Enable High Quality Recording
- Select this mode when your network is a low speed network that cannot assure enough bandwidth to send high quality video to users. When this mode is selected, dual mode streaming is enabled to provide high quality video recording on the HDD while providing lower quality on-line streaming video to connected users. Check the box at the left and select the recording type (Schedule, Manual, Sensor, and Motion) applicable to this feature. Alarm-triggered video recording is always done at the highest quality format.   The final selection in this submenu is the recording bit rate.   Typically, a bit rate above 600Kbps is adequate and provides sufficient video quality to the users.

• **Check**

After you finish the setup of video and audio for all the channels, click on this button to obtain the maximum possible number of users (Possible Max Users) and network bandwidth margin (Remained) remaining.   The Check tool will calculate the number of users able to view the video stream without any quality degradation or network congestion.

• **Possible Max Users**

Shows the number of maximum simultaneous connections for the network connection setup.

• **Remained**

Shows the network bandwidth margin when Possible Max Users are connected.

• **Limited Users**

Useful network bandwidth varies according to the condition of the network. This parameter is used to limit the number of simultaneous connections below the number shown in Possible Max Users.   In all cases, this value will be below Possible Max Users for optimal performance.

• **Save**

Save the setup parameters when the setup parameters are done.

5.3. Network Configuration

Set up the network parameters appropriately in accordance with your network environment. Many of the parameters on this page are the same as those used by the "IP-Installer".

Figure 5-4. Network Configuration

- **IP Assign Type:** The network connection types supported by the NVS480R are Static, PPPoE, and DHCP.

  - Select 'Static IP Setup' for static IP address configuration and enter the IP address, Subnet Mask, Gateway, DNS1 and DNS2 into the appropriate field.   Typically, these values will be assigned by the network administrator or ISP provider.   DNS2 is used when DNS1 is unreachable and is recommended.

  - Select 'PPPoE' in the network connection type if the NSV480R will be directly connected to a WAN.

Typically xDSL or broadband service providers will need this setting. Fill in the 'User Name' and 'Password' fields with the values assigned by the Internet service provider.

- When the network connection type is "automatic IP allocation by DHCP", select 'DHCP' in the network type.

  Refer to the [IP-installer user's guide] for "Clone MAC".

  Refer to the [IP-installer user's guide] for "Host name and domain for Cable Modem".

• **E-Mail Setup**

  - **Recv E-Mail Address**: Refer to [IP-installer user's guide] for "Recv E-Mail Address".

  - **Return E-Mail Address**: Refer to [IP-installer user's guide] for "Return E-Mail Address".

  - **Notify for IP Changed**: If you check this, the IP address will be sent via E-mail to this address whenever the IP address of the NVS480R changes.

  - **Title**: Is the predefined subject of the e-mail message sent to the user.

  - **Message**: Is the pre-defined content of the e-mail message sent to the user.

• **Port Change:** You can change the HTTP port, RTSP port, RTCP, and WebHdd port numbers. The RTSP port is used to connect the "Viewer" to the NVS480R. WebHdd is the port number to control access to the user data storage on the HDD of the NVS480R.

  Each port should have a number below # 65535.

  - **HTTP:** default "80"
  - **RTSP:** default "554**"**
  - **RTCP**: default "6971"
  - **WebHdd**：default "6971"

Management Server: This feature enables the built-in dynamic DNS client to automatically update the IP address of the NVS480R to a remote management web server. Currently, mgmt.AirGoggle.com is a free Dynamic DNS registration server for the NVS480R. A simple web management interface keeps all your network cameras and servers in one easy to track interface. This is a great option if you have multiple cameras and are using a Dynamic DNS.

IP Filtering: You can restrict the access to the administrator page utilizing IP address filtering.

- Restrict Administrator Access: Check this box to restrict administrative logon privileges.
- Base IP Address: Input an IP address of the PC that will be used for administrative access.
- Mask: This is the same as the subnet mask. It is used to allow administrative logon only from PCs located in the same subnet as the base IP address. If only one PC is allowed to access the administrative mode, set this value to 255.255.255.255.

5.4. User Admin & Time Setup

You can change the ID and password of users and also assign different attributes for each user.

Figure 5-5. User Admin. & Time Setup

-User Administration

- Administrator

 Username: Admin ID. Default ID is "root"

 Password: Admin password. The default password is "root".

 Confirm Password: Enter the password once more to confirm the password.

> ⚠ If you have forgotten the Administrator's ID and password, the only means of recovery is to reset the settings to factory default. Doing so will erase your previous settings.

- **Add User**

 Username: Enter the user ID you want to add. Up to 100 users are supported by NVS480R.

 Password: Enter the user password.

 Attribute: You can set different system resource access capabilities for each of the users.

 Attributes are Audio, Bi-directional Audio, and Pan/Tilt.

 For example, if you want a specified user to hear the audio from the NVS480R, check the Audio check box.

- **User List:** You can list "user ids" and " their attributes" here.

 List formats are as follows: user id [A, BA, P]: A – audio, BA – bi-directional audio, P – P/T/Z.

 You can delete specific users by selecting and clicking the "DELETE" button.

• **Authentication for Viewing:** If you want to restrict viewing access to the NVS480R,

 check the "Yes" box and click "Save". Users will need to input their User ID and password to connect to the NVS480R in viewing mode. (Figure 5-6.)

Figure 5-6. User Authentication on the NVS480R

- **If No [default attribute]:** If you uncheck "**Yes**" in "Authentication for viewing", every user can access the NVS480R without restriction or with the same attributes. You can enable the common attributes by selecting each attribute and clicking the "**Save**" button.

> Please Note: Adding users for authentication does not automatically enable the authentication service for the NVS480R. It is a combination of adding users and selecting "YES" for Authentication that will enable the authentication service.

• Time Setup

- **Current Time**: Displays the current time of the NVS480R.

- **Time Settings:** Options for setting the time manually or synchronizing to the PC.

Options	Description
"Synchronize With Computer Time"	Synchronizes the time with the PC time.
"Set Manually"	You can manually set the time.
"Synchronize with an Internet Time Server"	Synchronize the time with timer server on the internet. The default time server can be selected from the column at the right.
	If "Specific Time Server" is assigned, time is synchronized to the time of this server. If this server is not available, default time server is used for the time synchronized.
	Select GMT value for "Select Time Zone".
	Check at the box for "Daylight Saving" when summer time is applied.

5.5. Sensor & Capture Setup

This is the setup page for the conditions of video capture. Video capture can be triggered either by activating either alarm sensor or motion detection as set up by this page. When the sensor is triggered, the event is ported to the NVR100 Software. Captured video of the event can be stored on the HDD of the NVS480R.

Figure 5-7. Sensor & Capture Setup

• Sensor Setup: Up to 4 external sensors can be connected to the NVS480R.

  - **Type Selection**: Select sensor type. There are two sensor operating modes.

     . **Normal Open**: Open circuit in normal operation. A closed circuit indicates an alarm-triggered condition.

     . **Normal Close**: Closed circuit in normal operation. An open circuit indicates an-alarm triggered condition.

• Video Capture Condition: Sets which sensor will trigger video recording for channels 1-4. The NVS480R supports 2 types of sensor event triggers.

  1. Sensor: when at least one of the sensors detect a trigger event.

  2. Motion-detected: Motion triggered event from the video channel.

  NOTE: Both conditions are mutually independent in operation.

5.6. Alarm Device Setup

The configuration of the alarm device output when triggered by an alarm device input (senor or motion detection) can be configured on this page, including an output device port test and triggered condition.

Figure 5-8. Alarm Output Setup

• **Alarm Device Test:** Test alarm devices. Press On/Off for testing.   This option will manually trigger the output device 1 and 2 to the "ON" and "OFF" state.   It can be used in a new setup or for troubleshooting external devices.

• **Alarm Device Active Condition:** Set up the condition in which to trigger the output devices 1 and 2.   A combination of input sensors and motion detection can trigger the output device to activate.

   - **Duration:** Set the active duration of Alarm Out from the moment of the trigger.
          10 sec, 30 sec, 1 min, 2 min, 5 min, 10 min, 30 min, 1 hour.

5.7. Motion Region Setup

Set the motion detection regions. Up to 3 separate regions can be defined. After setting up the motion detection region, the corresponding selection in "Sensor & Capture Setup" ->"Video Capture Condition" -> "Motion Detection Select" should be enabled, to activate the motion detection and generate the alarm condition.
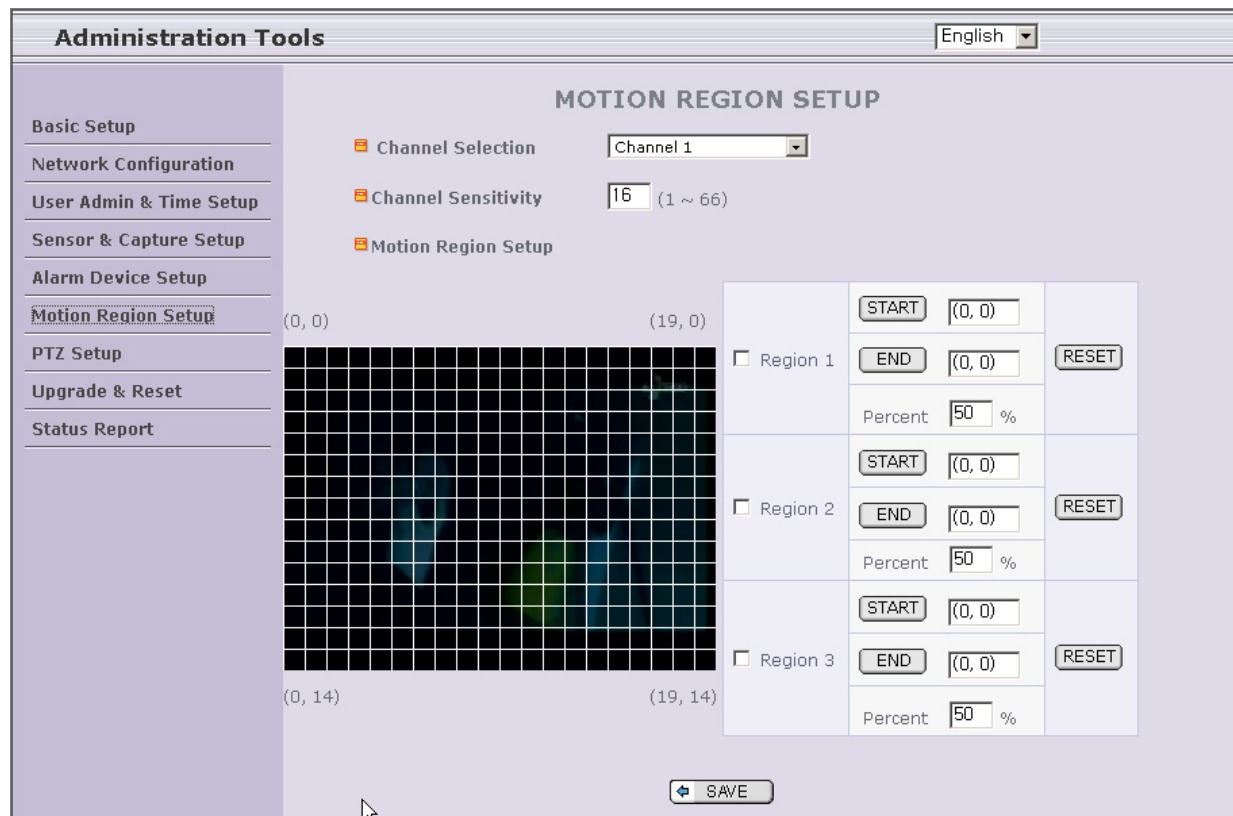
Figure 5-9. Motion Region Setup

• **Channel Selection:** Choose the channel on which you wish to enable the motion detection feature.

• **Channel Sensitivity:** Set the sensitivity of the motion detection for each channel.
  - 1 is the least sensitive and 66 is the most sensitive.
  - Sensitivity values can be set to different values among different channels, but the same sensitivity is applied for the regions within the same channel.

• **Motion Region Setup:** Set up to 3 motion detection regions per each video channel
  - **Region 1, 2, or 3**: Motion detection is enabled for the channels by checking each box.

. You can set the region by pressing the "START" button, and click one corner of the region in
the left viewing area. It will show the coordinate value automatically. Next you press the
"END" button, and click the opposite diagonal corner.

Regions are shown in three different transparent colors for easy identification:
red (region 1), green (region 2), blue (region3)
the "RESET**"** button clears the start & end point to (0,0) & (0,0)

. Percent: This value controls the sensitivity of each region.
1 is the most sensitive and 100 is the least sensitive.

5.8. PTZ Setup

Set up and test the P/T/Z (Pan, Tilt, Zoom) devices.

Figure 5-10. PTZ Setup

• **Channel Selection:** Choose the channel having the PTZ device.

• **PTZ Model Selection:** Choose the PTZ model for each channel.

Different PTZ models can be applied for each channel.

- **Delete Button:** Press this button to delete the setup of the PTZ.

• **PTZ Device ID**

Refer to **[5.9 Upgrade & Reset]** for adding a new PTZ device.

• **PTZ Operation Check:** You can check the various operations of the PTZ devices.

"LEFT"/"RIGHT"/"UP"/"DOWN", "AUTO FOCUS"/"ZIN"/"ZOUT"

• **PTZ Position Setup:** You can set up the PTZ limitation & preset positions if the PTZ device supports it.

- **Panning Limitation:** Set the left/right limitation and test.
- **Preset Position:** Set the preset position and test.

NOTE: The "PTZ Position Setup" feature is applicable only for the PTZ devices that support it.

5.9. Upgrade & Reset
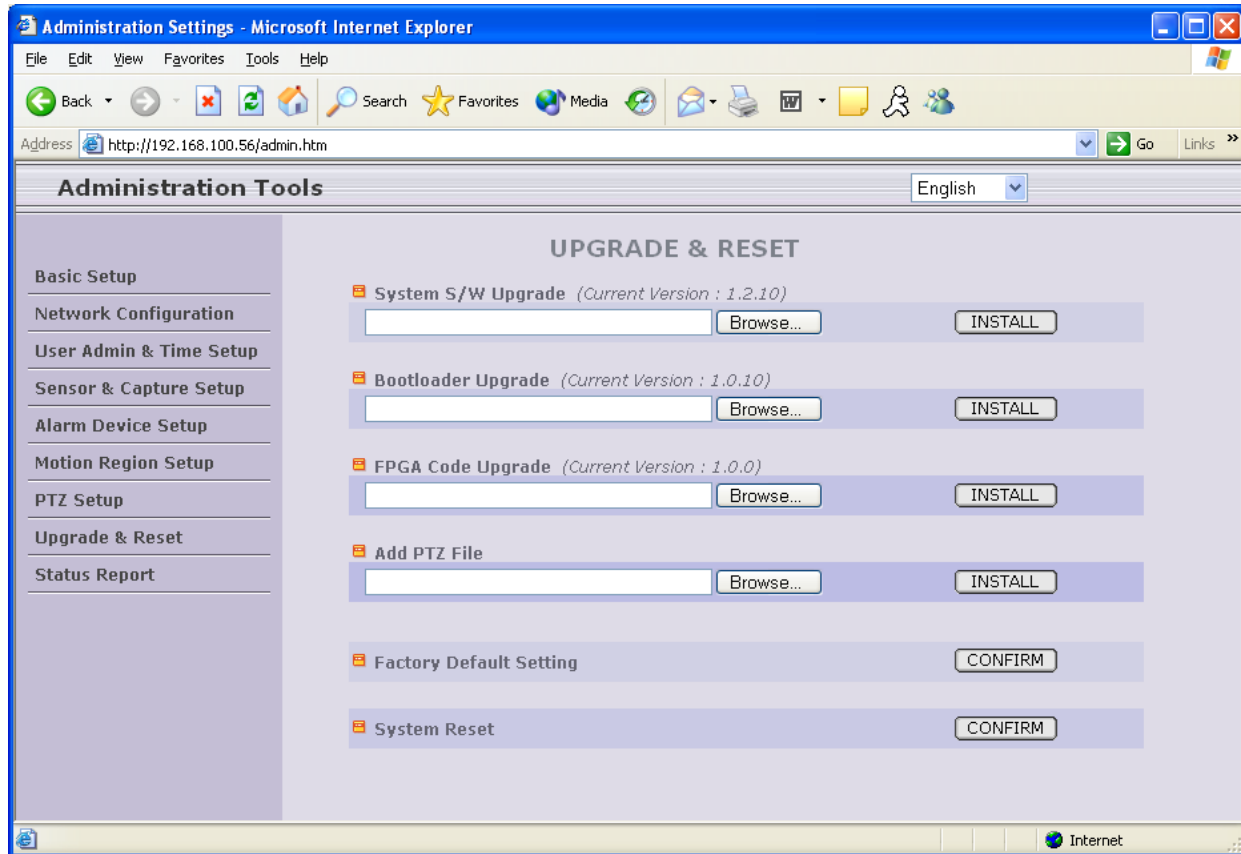
You can upgrade the NVS480R via the network.

Figure 5-11. Upgrade & Reset

The upgrade software, after release, may be downloaded from Inscape Data's web site.

(Refer to **[6.3**. **How To Upgrade Your NVS480R System]**

• **System S/W Upgrade:** Upgrade the system software installed on the server via the network.

    NOTE: **To apply the upgraded S/W, you should reset the system after the system S/W upgrade.**

• **Bootloader Upgrade**: Upgrades the bootloader installed in the server via the network.

• **FPGA Code Upgrade**: Upgrades the FPGA software in the server via the network.

• **Add PTZ File:** Adds a new PTZ descriptor via the network.

• **Factory Default Setting:** Re-initializes the NVS480R to the factory default state.

• <u>**NOTE:**</u> **To apply the Factory Default Setting, you should reset the system.**

> ⚠️ Once the NVS480R is re-initialized to the factory default state, it should be set up
> again using the IP-Installer.

• **System Reset:** Perform a remote reset by clicking the "CONFIRM" button.

> ⚠️ All users logged on to the NVS480R will be disconnected upon reset. The NVS480R
> does not resume the connections automatically. The users must re-connect to the
> server manually.

• <u>**NOTE:**</u> **To apply the upgraded S/W, you should reset the system after the system S/W upgrade.**

5.10. Status Report

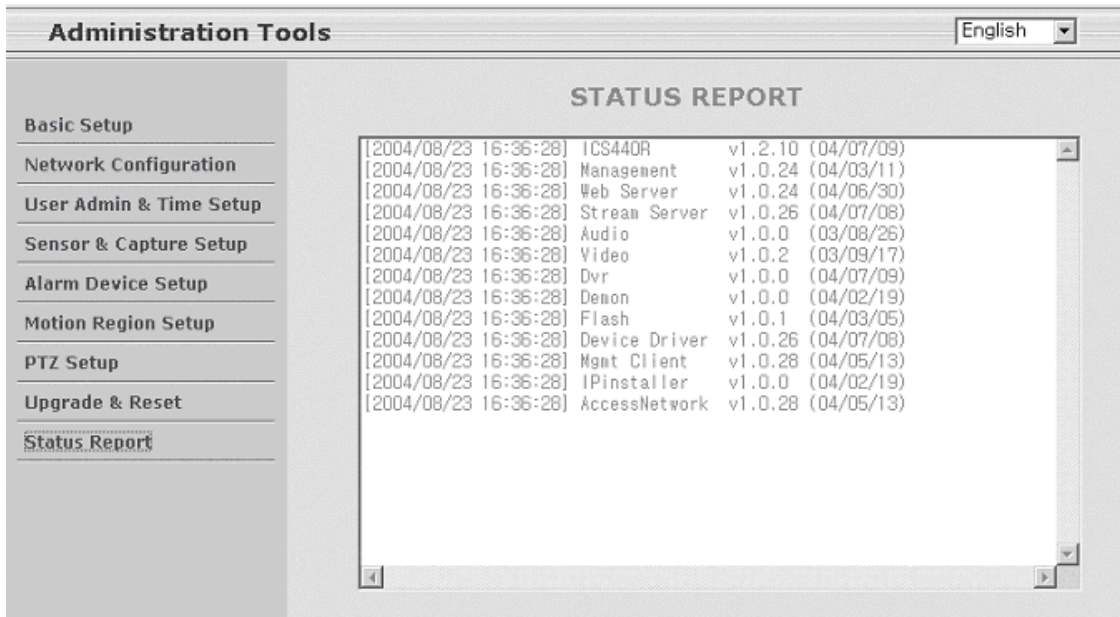Reports the system records since the system started.

Figure 5-12. Status Report

You can use the status report page to troubleshoot or diagnose the NVS480R or to monitor the software versions and event statuses of the whole system.   To scroll the text place your mouse cursor over the text and left mouse click to scroll the page to the desired time and date.

6. Tips for Using NVS480R

6.1. Alarm Input/Output

The Alarm In/RLY OUT Connector is used to connect the various sensing and alerting devices. Examples of sensing devices are infrared sensors, motion sensors, heat/smoke sensors, and magnetic sensors.   Examples of alerting devices are sirens or beacons. It can also be used to lock doors or trigger a call to the police department.   The options are limitless since the output can also be ported to a solid state relay to drive high voltage devices like garage door openers, motors, sprinkler systems, and much more.
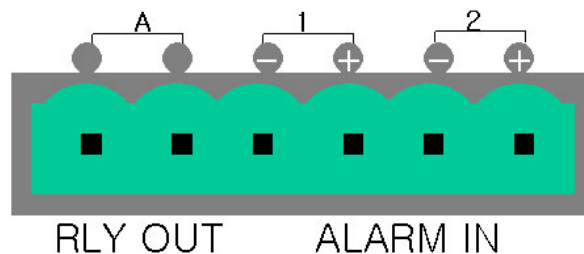

Figure 6-1. Alarm IN/RLY OUT Connector

No.	Name	Description
1	In -	Input signal from external sensor device (-)
2	In +	Input signal from external sensor device (+)
3	Out -	Output signal to external alerting device (-)
4	Out +	Output signal to external alerting device (+)

1. Alarm Input (ALARM IN)

Connect the two wires of the sensors. The sensor type can be set in Administrative

Mode (Ref. 5.5 & 5.6).   Output lines providing on-off switching are connected between the

"In-" and "In+" pins. Figure 6-2 shows the input circuit of "Alarm In".
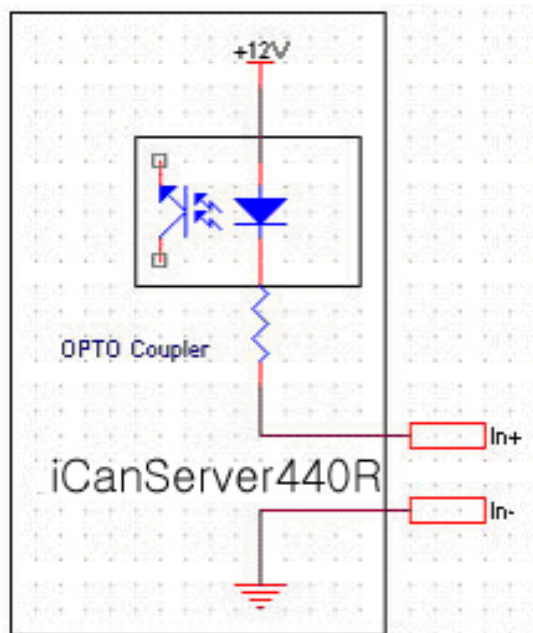
Figure 6-2. Alarm Input Circuit of the NVS480R

2. Alarm Output (RLY OUT)

Alarm output is configured as a relay circuit. The relay circuit in normal operation is open and circuit is closed upon the input trigger from motion or an external sensor. The relay is capable of switching 30V/2A of electrical signal.
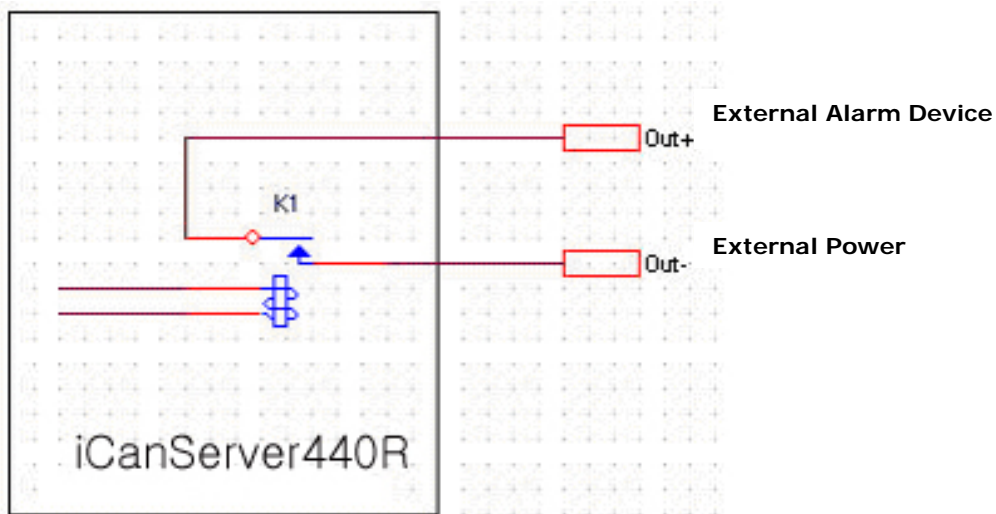

Figure 6-3. Alarm Output of the NVS480R

6.2. Troubleshooting

• **In the NVS480R's viewing mode, neither channel name nor video is displayed, and eventually a timeout message appears.**

Check the power and network connection of the NVS480R.

To check if the network is properly operating, open the browser and try to connect to any server.

Example- http://www.InscapeData.com

Or open the MS-DOS Prompt and type the following.

ping www.InscapeData.com

Then press Enter. If you see the " Reply from …" message it means that the network is working properly. To check if the NVS480R is connected, open the MS-DOS Prompt and type the following.

ping [the IP of the server]

Example- ping 192.168.1.112

If you see the "Reply from …" message, it means that the server is properly connected.

If you do not see a Reply message, check if the network cable and power cable are properly connected.

• **The name of the channel on the NVS480R is displayed but there is no video.**

Check if there is an input video source to the channel. Then check if there is a wall in the network, and if the network is NAT type.

In case there is a firewall in the network:

Please refer to "Firewall" Application Notes in the CD.

If the network is NAT type, you need port mapping.

Please refer to the "IP sharing device" Application Notes in the CD.

2. After Successfully Connecting to the NVS480R

• **Video movement is slow.**

● In the Basic Setup of Admin Mode, lower the "Quality". High quality means more data. You can also set the "Max. Bandwidth" to a higher value. But this value must be lower than the maximum upload speed of your network. For example, if the maximum uploading bandwidth of the network is

400Kbps, set the total "Max. Bandwidth" of the 4 channels to 384Kbps. If you set it higher, the video image can be corrupted with artifacts.

Ask your network manager or ISP for the maximum uploading bandwidth of the network.

● Check whether dual streaming mode is enabled and if the NVS480R is recording video. Dual streaming mode is enabled by selecting "Enable High Quality Video Recording" on the basic setup page (Refer to Section 5.2). When dual streaming mode is enabled, the NVS480R provides low speed video to connected users while recording high quality video into HDD.

- **The image is dull and I see green and pink dots.**

This could be caused by performance limitations of the PC. Do not run too many programs while running viewer program. The other reason could be missing data while transmitting from the NVS480R.

- **Mosaic phenomenon.**

Mosaic phenomenon occurs when not enough network bandwidth is available considering the resolution and frame rate of the video.

Example is 640x480 video with low Max. Bandwidth.

Users are recommended to adjust resolution and frame rates to lower values for lower bandwidth network.

3. How can I maintain high quality video recording when I'm using low speed network?

The NVS480R has Dual Streaming mode that enables high quality video recording on the HDD, while providing lower quality video to on-line users. This feature is enabled by selecting "Enable High Quality Recording" in basic setup mode. (Refer to 5.2 for more detailed information.)

6.3. How To Upgrade Your NVS480R System

1. Log on to administration mode and select the "Update & Reset" menu.

2. Click "Browse..." to find the files you want to use for the upgrade. This will open a "Choose file" dialogue window. The file extension is "ief".

3. When you've found the file, click "Open." This will select the file and close the "Choose file" dialogue window.

4. Click the "INSTALL" button. An alert message box will pop up. Click the "OK" button, and then it will start uploading the file. This may take some time.

5. An upgrade completion message will appear after the system upgrade has been completed.

6. Reboot the NVS480R by performing a "System Reset".

7. After rebooting, log on to the administration mode again and click the "Status Report" on the left side.

8. Check the version and release date of the NVS480R ™.

You can download the NVS480R system software from Inscape Data's homepage:
http://www.InscapeData.com/product/download.html

6.4. How to Replace the Hard Disk on NVS480R

The NVS480R has a hard disk that can be replaced when needed. To replace the hard disk, follow the procedures described below.

1. Remove the 4 screws joining the front panel to the body of the NVS480R.

2. After removing the front panel, you can find the power cable and the IDE flat cable connected to the hard disk at the center of the housing.
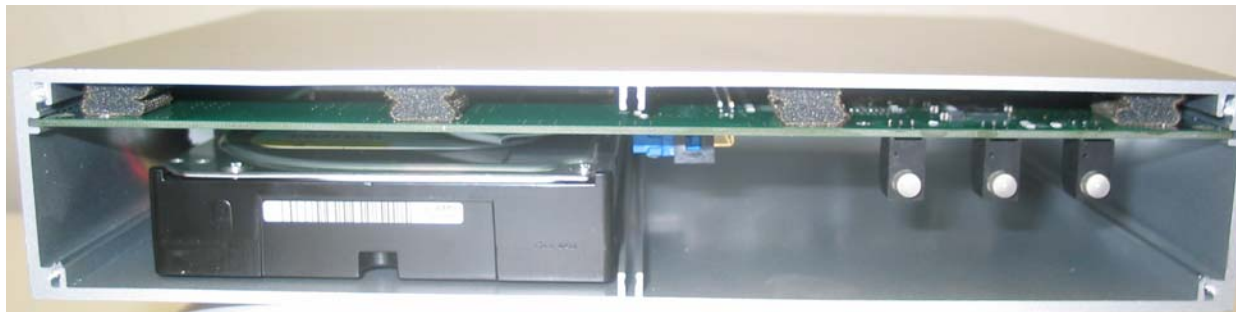
3. At the bottom of the housing, there are 4 screws. Remove the screws.

4. Carefully slide the Hard Disk Drive out from the chassis.

NOTE: Any shock induced to the Hard Drive may result in damage.

5. Unplug the IDE cable from the Hard Disk.

6. Install a new hard disk and follow the reverse procedure from step 5 back to step 1.

7. Format the New Hard drive by using the format command of the NVR100 Software.   If the Hard Drive has already been previously formatted by the NVR100, then this is not necessary.